

What is claimed is:

- 1 1. A method for reducing power consumption in a satellite  
2 downlink transmitter, the method comprising:  
3 defining a frame structure for use on a downlink, and  
4 further defining a traffic body and an overhead  
5 body in said frame structure;  
6 determining a traffic transmit time and an overhead  
7 transmit time;  
8 storing synchronization information in said overhead  
9 body;  
10 activating a transmitter for said overhead transmit  
11 time and transmitting said overhead body; and  
12 selectively deactivating said transmitter for said  
13 traffic transmit time.
- 1 2. The method of claim 1, wherein said step of activating  
2 a transmitter includes the step of enabling a power  
3 amplifier.
- 1 3. The method of claim 1, wherein said step of activating  
2 a transmitter includes the step of applying a downlink  
3 frame signal representing said overhead body to a  
4 travelling wave tube amplifier.
- 1 4. The method of claim 1, wherein said step of  
2 deactivating said transmitter includes the step of

3        disabling a power amplifier.

1    5.    The method of claim 1, wherein said step of  
2        deactivating said transmitter includes the step of  
3        eliminating an input signal to a travelling wave tube  
4        amplifier.

1    6.    The method of claim 1, wherein said step of defining  
2        said traffic body includes defining said traffic body  
3        as a multiple of a 53 byte Asynchronous Transfer Mode  
4        (ATM) cell.

1    7.    A method for reducing power consumption in a satellite  
2        downlink transmitter, the method comprising:  
3        defining a frame structure for use on a downlink, and  
4                further defining a traffic body and an overhead  
5                body in said frame structure;  
6        determining a traffic transmit time, an overhead  
7                transmit time;  
8        storing synchronization information in said overhead  
9                body;  
10        queueing traffic information for transmission to  
11                produce queued traffic;  
12        establishing a latency threshold which determines the  
13                maximum time for which any portion of traffic  
14                information remains queued without transmission;  
15        determining whether said latency threshold has been

16                   exceeded; and  
17           transmitting information in a downlink according to the  
18           following substeps:  
19                   activating a transmitter for said overhead  
20                   transmit time and transmitting said  
21                   overhead body including said  
22                   synchronization information;  
23                   transmitting, if said latency time has been  
24                   exceeded, said traffic body for said  
25                   traffic time; and  
26                   deactivating, if said latency time has not  
27                   been exceeded, said transmitter for said  
28                   traffic transmit time.

1   8.   The method of claim 7, further comprising the step of  
2       storing in at least one traffic body said queued  
3       traffic.

1   9.   The method of claim 7, further comprising the step of  
2       sequentially storing in multiple overhead bodies  
3       synchronization information and sequentially storing in  
4       multiple associated traffic bodies said queued traffic,  
5       and wherein said transmitting step comprises activating  
6       said transmitter to transmit each of said multiple  
7       overhead bodies and each of said multiple associated  
8       traffic bodies in which queued information has been  
9       stored.

- 1 10. The method of claim 7, wherein said step of  
2 establishing a latency threshold comprises establishing  
3 said latency threshold as a multiple of a frame  
4 transmit time.
- 1 11. The method of claim 7, further comprising the steps of:  
2 determining when enough queued information exists  
3 to fill said traffic body;  
4 storing said queued information in said traffic  
5 body;  
6 activating said transmitter to transmit said  
7 overhead body and said traffic body.
- 1 12. The method of claim 7, wherein said queueing step  
2 comprises queueing traffic information in units of 53  
3 byte Asynchronous Transfer Mode (ATM) cells.
- 1 13. The method of claim 7, further comprising the step of  
2 storing null information in any traffic body that is  
3 only partially filled with queued traffic information.
- 1 14. The method of claim 13, wherein said step of storing  
2 null information comprises storing null ATM cells.
- 1 15. A method for reducing power consumption in a satellite  
2 downlink transmitter which transmits frames in a

3       downlink beam, said frames comprising an overhead body  
4       of predetermined length in said frame and a traffic  
5       body of predetermined length in said frame, the method  
6       comprising:  
7       iterating the following steps:  
8             building an overhead body;  
9             building an associated traffic body;  
10            transmitting said overhead body with a  
11            transmitter; and  
12            selectively deactivating said transmitter for the  
13            duration of a traffic transmit time for said  
14            traffic body.

1   16. The method of claim 15, wherein said step of  
2       selectively deactivating comprises deactivating in  
3       response to content in said traffic body.

1   17. The method of claim 16, wherein said step of  
2       selectively deactivating comprises deactivating said  
3       transmitter when said content is all null information.

1   18. The method of claim 15, further comprising the steps  
2       of:  
3       building an additional overhead body;  
4       building an additional associated traffic body;  
5       activating said transmitter;  
6       transmitting said additional overhead body; and

7 selectively deactivating said transmitter for the  
 8 duration of a traffic transmit time for said  
 9 traffic body.

1 19. The method of claim 15, further comprising determining  
 2 said traffic transmit time as the amount of time  
 3 required by said transmitter to send said traffic body.

1 20. The method of claim 15, further comprising storing null  
 2 information in said traffic body.